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EXAMINER

TAMAI, KARL I

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 04/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/016,991

Applicant(s)

RAFAELOF, MENACHEM

Examiner

Tamai IE Karl

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 January 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-20 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 13 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference signs not mentioned in the description: 255 and 257. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference signs in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the fluid between the electrodes must be shown or the features canceled from the claims. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. The amended title of the invention, "Thin Film Electrostatic Motors" is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The examiners suggests "Thin Film Electrostatic Motors With Dynamic Pressure Bearings".

Claim Objections

4. Claims 1-11, 19, and 20 are objected to because of the following informalities: claim 1 has spelling informalities on line 6, "th" should be "the", and claim 19 has spelling informalities on line 2, "th" should be "the". Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. The rejection of Claims 1-4 under 35 U.S.C. 102(b) over Otsuka et al. (Otsuka)(JP 08-033,360) is withdrawn.

7. The rejection of Claims 1, 4, 7, 11, and 18 under 35 U.S.C. 102(b) over Howe et al. (Howe)(US 4943750) is withdrawn.

8. Claims 1, 4, 7, 8, 9, 10, and 11 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Tanaka et al. (Tanaka)(JP 08-029556). Tanaka teaches an electrostatic motor with a rotor having electrodes 35 and the stator having electrodes 25 driven by a voltage source 37. Tanaka teaches a rotor with a bearing ring/dimple rotating about a shaft/nub with oil lubricant (dielectric constant inherently greater than 1). Tanaka teaches the oil is positioned between a surface of the stator (stationary

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part) and the rotor (rotating part) of the bearings. It is inherent that the oil maintains the gap between the rotor and stator bearing parts which inherently maintains the spacing of the electrodes.

9. Claims 18 and 19 are rejected under 35 U.S.C. 102(b) as being clearly anticipate by Iwasaki (US 5235454). Iwasaki teaches a spindle motor with rotor and stator electrodes 18 receiving alternating electric charge with a fluid between the electrodes to maintain the gap between the rotor and stator during operation. Iwasaki teaches a dynamic pressure grooves 34 to work with the fluid.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 6, 12, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (Tanaka)(JP 08-029556) and Kusaki (JP 06-021532). Tanaka teaches every aspect of the invention except the herring bone dynamic pressure bearing. Kusaki teaches a herring bone dynamic pressure bearing on the inclined surface 2a for a micromotor (see figures 4 and 5). It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the motor of Tanaka with the herring bone bearing of Kusaki to provide a stable bearing in the axial and radial directions.

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12. Claims 2 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (Tanaka)(JP 08-029556) and Kusaki (JP 06021532), in further view of Mizoshita et al. (Mizoshita)(US 5793560). Tanaka and Kusaki teach every aspect of the invention except the rotor being a disc media. Mizoshita teaches the rotor being a disc media (Figure 23). It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the motor of Tanaka and Kusaki, with the rotor being a disc media to store magnetic information as taught by Mizoshita.

13. Claims 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (Tanaka)(JP 08-029556) and Kusaki (JP 06021532), in further view of Howe et al. (Howe)(US 5,043,043). Tanaka and Kusaki teach every aspect of the invention except the spacing between the mover and stator being 1-5 microns. Howe teaches the gap between the rotor and stator being 1-5 microns. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the motor of Tanaka and Kusaki to with the gap between the rotor and stator being 1-5 microns because Howe teaches it is the preferred gap in microractuators to provide a strong electrostatic field in the microactuator.

14. Claims 5 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (Tanaka)(JP 08-029556) and Kusaki (JP 06021532), in further view of Zedekar et al. (Zedekar)(US 5173797). Tanaka and Kusaki teach every aspect of the invention except the grooves on the rotor instead of the rotor. Zedekar teaches the

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grooves on the rotor or the stator. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the motor of Tanaka and Kusaki with the grooves on the rotor because it is within the ordinary skill in the art to choose between known equivalents.

15. Claims 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasaki (US 5235454) and Narita et al. (Narita)(JP 08-051786). Iwasaki teaches every aspect of the invention except the fluid having a dielectric constant greater than 1 or surface electrodes. Narita teaches oil as the fluid and surface electrodes in an electrostatic motor with increased speed due to the fluid lubricant. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the motor of Iwasaki with the oil lubricant of Narita to provide a fast moving rotor.

Response to Arguments

16. Applicant's arguments filed 1/13/2004 have been fully considered but they are not persuasive. The Applicant's argument that Tanaka does not teach a fluid between the rotor and stator is not persuasive, see the 35 USC 102 rejection above. The Applicant's argument that there is air between the stator and rotor appears to be directed to the space between the electrodes, which has not been claimed in claim 1. The Applicant's argument that neither Kusaki or Tanaka teaches dynamic pressure bearing surfaces on both the rotor and stator is not persuasive. Kusaki teaches a dynamic pressure bearing between surfaces 1a and 2a, on the rotor and stator

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respectively. It is inherent that a dynamic pressure bearing cannot function without two opposing bearing surfaces.

Conclusion

17. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl I.E. Tamai whose telephone number is (571) 272 - 2036.

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The examiner can be normally contacted on Monday through Friday from 8:00 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Darren Schuberg, can be reached at (571) 272 - 2044. The facsimile number for the Group is (703) 872 - 9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Karl I Tamai
PRIMARY PATENT EXAMINER
April 1, 2004



KARL TAMAI
PRIMARY EXAMINER